

REMARKS

The application is believed to be in condition for allowance.

There are no formal matters outstanding.

Claims 1-8, 11-12, 14 and 17-20 are pending.

The Obviousness Rejection

Claims 1-8, 11-12, 14 and 17-20 stand rejected as obvious over KOEMAN et al. 5,731,706 ("KOEMAN") in view of VALENTI et al (US 2002/0041565, "VALENTI").

Applicants' Response

VALENTI claims priority to U.S. Provisional Applications 60/222,734, filed August 3, 2000 and 60/262,548, filed January 17, 2001.

As is acknowledged by the Official Action (page 7), only the subject matter of U.S. 60/222,734 is prior art to the present application ("VALENTI Provisional '734").

The text of the obviousness rejection appears to repeat the rejection of the previous Official Action.

The Official Action does, however, respond to applicants' previous Amendment's remarks (beginning at the bottom of page 6) and that response is appreciated.

On page 9, the last seven lines of the last Amendment, it was said that "KOEMAN et al. is not concerned the xDSL

frequency bands and thus teaches to measure beyond the xDSL frequency and up to 100 MHz as KOEMAN et al." This remark needs to be considered in context.

Applicant pointed out (page 8 of the Amendment) that the present invention tests the telephone lines for cross-talk existing on the telephone line due to interference from other subscriber telephone lines **within the frequency range delimited by xDSL use**. The present invention does not look outside the xDSL frequency range.

See that claim 1 recites, in relevant part: "using a testing system installed in a telephone office proximate a main distribution frame polls, before connection of a subscriber telephone line to said xDSL system, said subscriber telephone line at an outside line of an xDSL circuit, **to measure a cross-talk noise characteristic of said subscriber telephone line only within an xDSL transmission frequency band**,".

Claim 2 recites: "... compares said noise spectrum data with a template for noise level decision, which is weighted at a subject frequency, to thereby determine whether or not said subscriber telephone line is usable, **only within a frequency band for Direct Multi-Tone xDSL use**, said measurement of the cross-talk is made without injecting a test signal onto the subscriber telephone line under test."

Claim 3 recites: "noise level measuring means for measuring an existing level of cross-talk noise on the subscriber

line **limited to an xDSL transmission frequency band**; and decision means for determining, based on the level of cross-talk noise measured, whether or not the subscriber line is **usable within the frequency range delimited by xDSL use**."

Applicants previously pointed out that KOEMAN, in contrast to their invention, is not concerned with limiting testing to the xDSL frequency bands and thus KOEMAN teaches to measure beyond the xDSL frequency and up to 100 MHz.

The Official Action's response on page 6 does not dispute this "See Koeman et al's use a range of 1-100 MHz. See column 2, lines 56-63 indicating sampling at .15 and .25 MHz intervals over the range 1 MHz through 100 MHz." Also see the last lines of the first paragraph of Official Action page 7: "Therefore, Koeman frequencies of 0 to 100 MHz clearly fall within known xDSL frequencies range of 25 KHZ to 1.1 MHZ.".

Thus, although KOEMAN teaches to test a range that includes the xDSL range, there is no teaching of limiting the testing to the xDSL range. Indeed, the teaching in contra, in that the teaching is to test well beyond the xDSL range, i.e., testing to 100 MHz.

The Official Action, in responding the applicants' previous remarks, does review the disclosure of VALENTI Provisional '734.

VALENTI Provisional '734 (sic, should be VALENTI) is said (beginning with the last two lines of Official Action page 7) to teach a tester wherein a volt meter is used to determine if crosstalk exists on a bundled telephone cable (see at least the last two lines of paragraph 46). VALENTI Provisional '734 is said to reveal the same voltmeter being used, for example page 1, first paragraph and page 3, last 5 lines.

Applicants disagree.

It is true that between these two passages there are expressions of an object of the VALENTI Provisional '734 being able to take measurements in DSL band and performing calculations with a centralized automated system to provide spectrum management and that the VALENTI Provisional '734 invention relates generally to an automated method and system for the prediction and/or identification of crosstalk between pairs within a cable and the spectrum management of such systems.

But these two passages do not disclose any voltmeter.

The second full paragraph of VALENTI Provision '734 is offered as disclosing measurements and crosstalk source identification being performed with automated algorithms, the crosstalk data collected and used by a spectrum management system to enable more efficient spectrum management.

The second to last paragraph of page 5 is offered to disclose a new "broadband test head" installed in the office to

automatically and routinely provide current information on loop make-ups and crosstalk.

Page 8, second full paragraph, is offered for teaching accounting for individual types of crosstalk sources or crosstalk couplings related to particular pair in a cable, and that a system that can characterize crosstalk on a loop-by-loop basis has a potential to yield a much more **granular crosstalk characterization of the plant.**"

The paragraph spanning pages 8-9, in discussing how a database to be used in the invention might be created, is offered as disclosing measuring near-end crosstalk (NEXT) from an upstream ADSL source for a number of pair-to-pair combinations. These are compared against measurements of known sources for "source matching".

In the following pages, VALENTI Provisional '734 discusses using the broadband test head to access the loop through metallic test and directly measure received crosstalk, thus measuring crosstalk on an individual basis to track crosstalkers.

VALENTI Provisional '734 fairly teaches measuring crosstalk. But see that the disclosure of how this measurement is done is found on page 6, last paragraph. The approach used for deterring the loop make-up is in the time-domain and involves time domain reflections of special pulses sent out on the loops via the local metallic test bus. From this, it is clear that a

voltmeter is not being used and rather that is signal is being injected. See claim 2 reciting "without injecting a test signal onto the subscriber telephone line under test."

The Present Invention

The present invention concerns xDSL and existing cross-talk noise caused by other subscriber telephone lines, e.g., digital signals carried thereon. As shown in Figure 2 of the present application, a voltage measurement is made across the T and R connections of the subscriber telephone line.

The invention tests the telephone lines for cross-talk existing on the telephone line due to interference from other subscriber telephone lines within the frequency range delimited by xDSL use. The present invention does not look outside the xDSL frequency range as those frequencies are of no interest.

The Official Action admits that KOEMAN is not limited to the xDSL frequency range but teaches to test up to 100 MHz.

Further, KOEMAN discloses testing the quality of a **LAN cable system** by injecting **a pulse signal** into the telephone line and measuring a response signal so as to assess the quality of the LAN cable system in the frequency appropriate to LAN signals. See KOEMAN et al. Figure 5 disclosing source signal generator 202 with pulse generator 206 providing a stimulus signal into the LAN cable system 14 and receiver 208 measuring the responsive signal.

As noted above, VALENTI Provisional '734 also injects a signal into the line as part of the test.

In contrast, the present invention, as per claim 1, **measures a cross-talk noise characteristic of said subscriber telephone line only within an xDSL transmission frequency band**; per Claim 2 "**...only within a frequency band for Direct Multi-Tone xDSL use,**"; and per claim 3 "noise level measuring means for measuring an existing level of cross-talk noise on the subscriber line **limited to an xDSL transmission frequency band**; and decision means for determining, based on the level of cross-talk noise measured, whether or not the subscriber line is **usable within the frequency range delimited by xDSL use**".

As admitted by the Official Action KOEMAN does not teach to limit testing to the xDSL frequency band. KOEMAN et al. tests outside the range of xDSL use and beyond the range recited in the claims. There is no teaching in KOEMAN et al. to perform tests within the limited, recited range of the pending claims.

The Official Action proposes to modify KOEMAN et al. to be a tester for cross-talk after the installation phase (in-service and/or existing service lines) based on VALENTI, more specifically VALENTI Provisional '734.

Measuring cross-talk within the limited xDSL frequency range, is not disclosed by VALENTI Provisional '734. Further, VALENTI Provisional '734 teaches to inject a signal.

The references, taken alone or in any reasonable combination, do not teach or suggest that recited.

As to claim 17, the recited features are not found in either reference. More specifically, the references do not disclose at least:

a noise level measuring means for measuring an existing level of cross-talk noise on the subscriber line ascribable to first digital signal cross-talk noise within an overlapping frequency range of a first xDSL channel under test, wherein,

said noise level measuring means comprises a voltage measuring circuit for measuring an existing cross-talk noise voltage input via said relays, an ADC (Analog-to-Digital Converter) circuit for converting cross-talk noise voltage measured to a digital signal, and an FFT (Fast Fourier Transform) circuit for transforming the digital signal to noise spectrum data.

There is at least no teaching of a noise level measuring means for measuring an existing level of cross-talk noise on the subscriber line ascribable to first digital signal cross-talk noise **within an overlapping frequency range of a first xDSL channel under test.**

Reconsideration and allowance of all the pending claims are therefore respectfully requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. \$1.16 or under 37 C.F.R. \$1.17.

Respectfully submitted,

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